Assessment in the Era of the Common Core: Challenges and Opportunities

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April 11, 2014

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FYI

Electronic copies of slides are available

by request

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Goal

- Examine assessment practices to support all students' attainment of proficiency in CCSS-M
- Describe my priorities as NCTM president for the coming year

NCTM Foundational Priorities

- Access and Equity
- Advocacy
- Curriculum, Instruction, Assessment
- Professional development
- Research
- Technology

25 Years of Standards

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- *Curriculum and Evaluation Standards for School Mathematics* (1989)
- *Professional Standards for Teaching Mathematics* (1991)
- *Assessment Standards for School Mathematics* (1995)
- *Principles and Standards for School Mathematics* (2000)
- *Curriculum Focal Points* (2006)
- *High School Reasoning and Sense Making (2009)*

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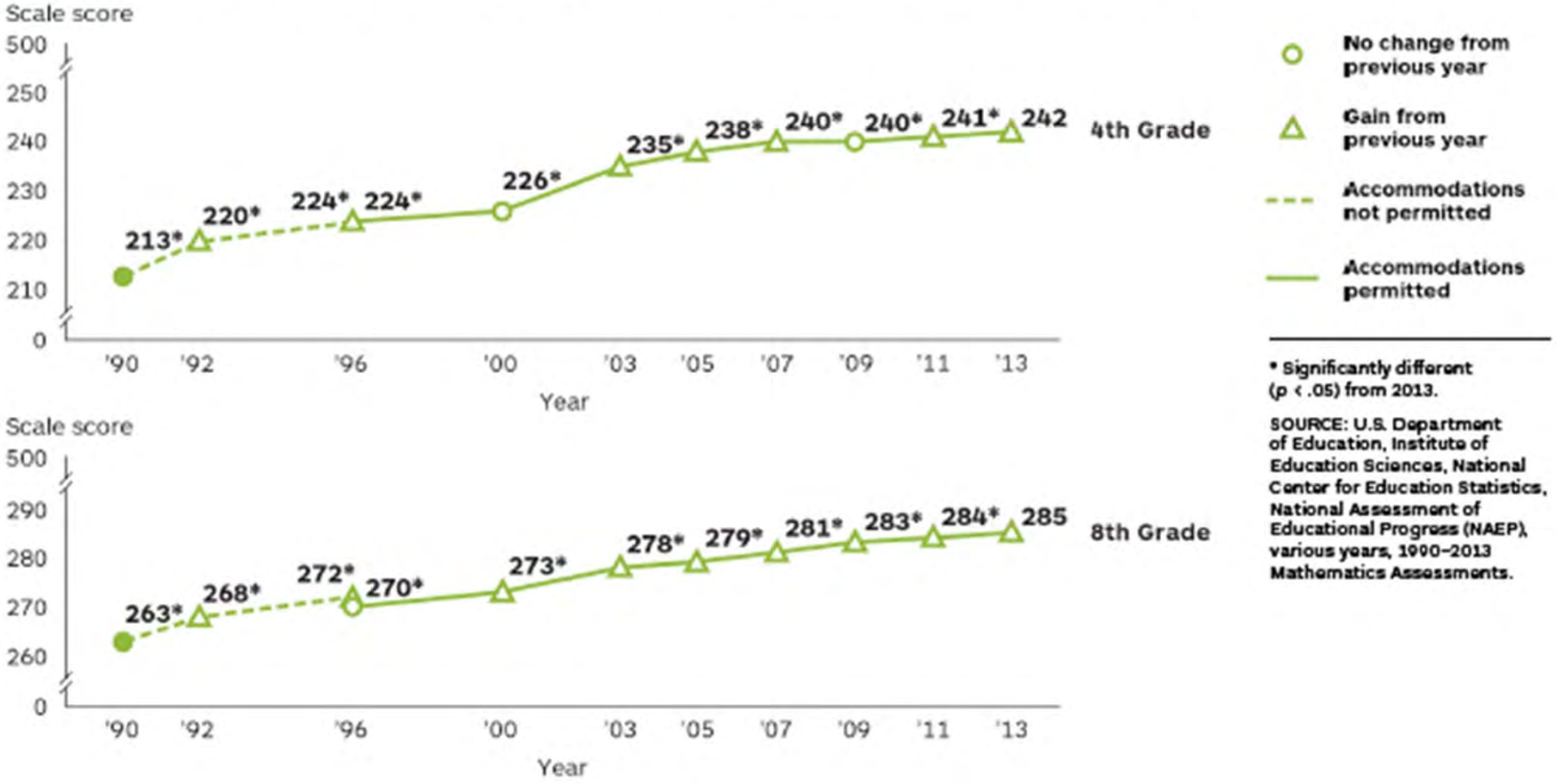
Progress:
National Assessment of Educational Progress

FIGURE 2. Trend in fourth- and eighth-grade NAEP mathematics average scores



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Progress: High School

- College-entrance examinations, 1990 to 2012:
  - SAT-Math mean score increased form 501 to 514
  - ACT-Math mean score increased from 19.9 to 21.0
- Advanced Placement Calculus Examinations
  - Increased from ≈ 77,600 in 1982 to ≈ 361,400 in 2012, with ≈ 50% scoring 4 or 5*
- Advanced Placement Statistics Examinations
  - Increased from ≈ 7,700 in 1997 to ≈ 152,800 in 2012, with over 33% scoring 4 or 5

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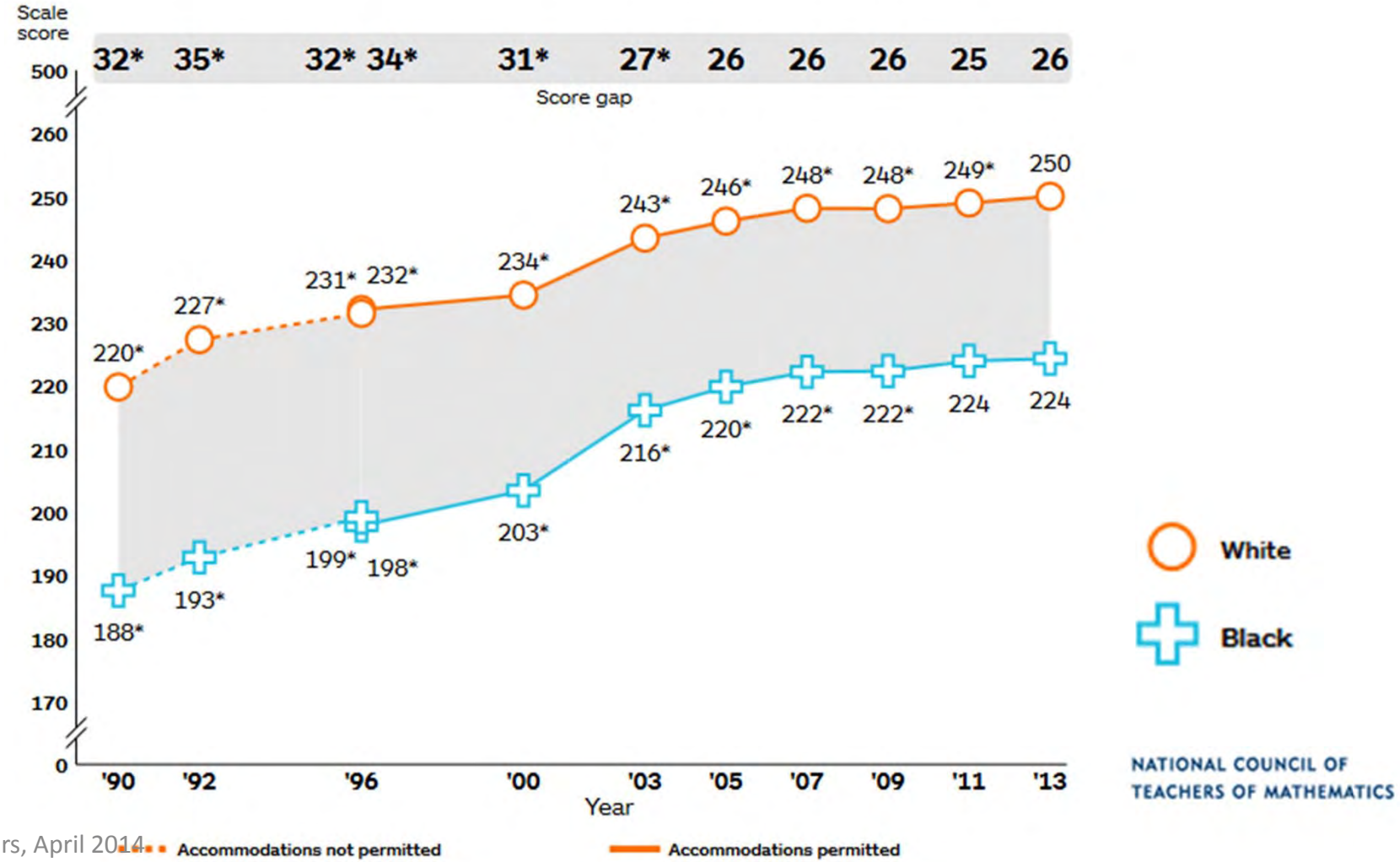
* well-qualified or extremely well qualified

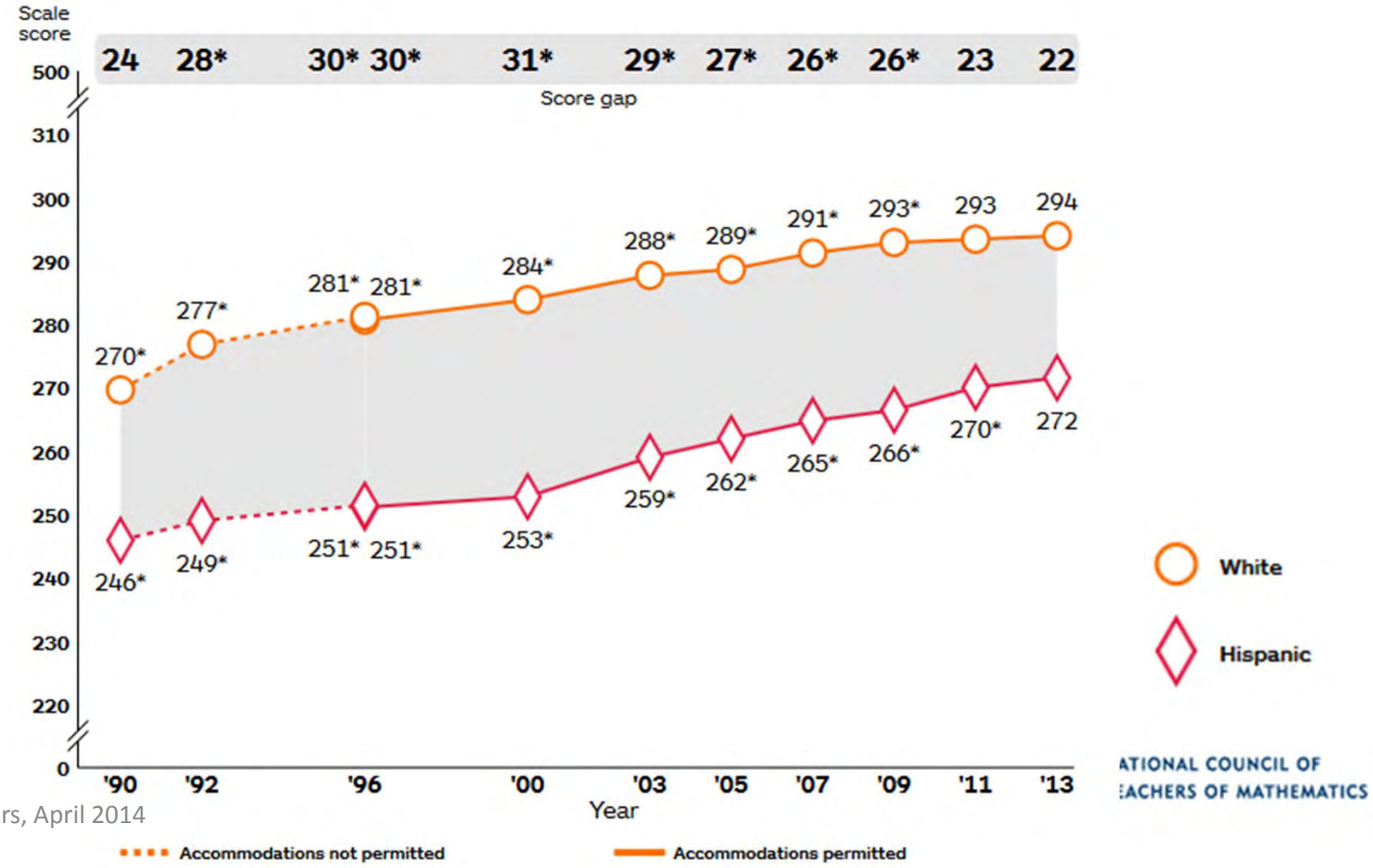
Challenges: Achievement Gaps

2013 NAEP Mathematics, Grade 4, White – Black Score Gaps



Challenges: Achievement Gaps

2013 NAEP Mathematics, Grade 8, White – Hispanic Score Gaps



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Challenges

- Average NAEP mathematics scores for 17-year olds has been essentially flat since 1973.
- Only 16 percent of U.S. high school seniors are proficient in mathematics interested in a STEM career.
- On the 2012 Programme for International Student Assessment (PISA) of 15-year-olds, the US ranked 26th in mathematics out of 34 countries.
- Between 2003 and 2012, the US's mean PISA score declined while many countries increased their mean scores.

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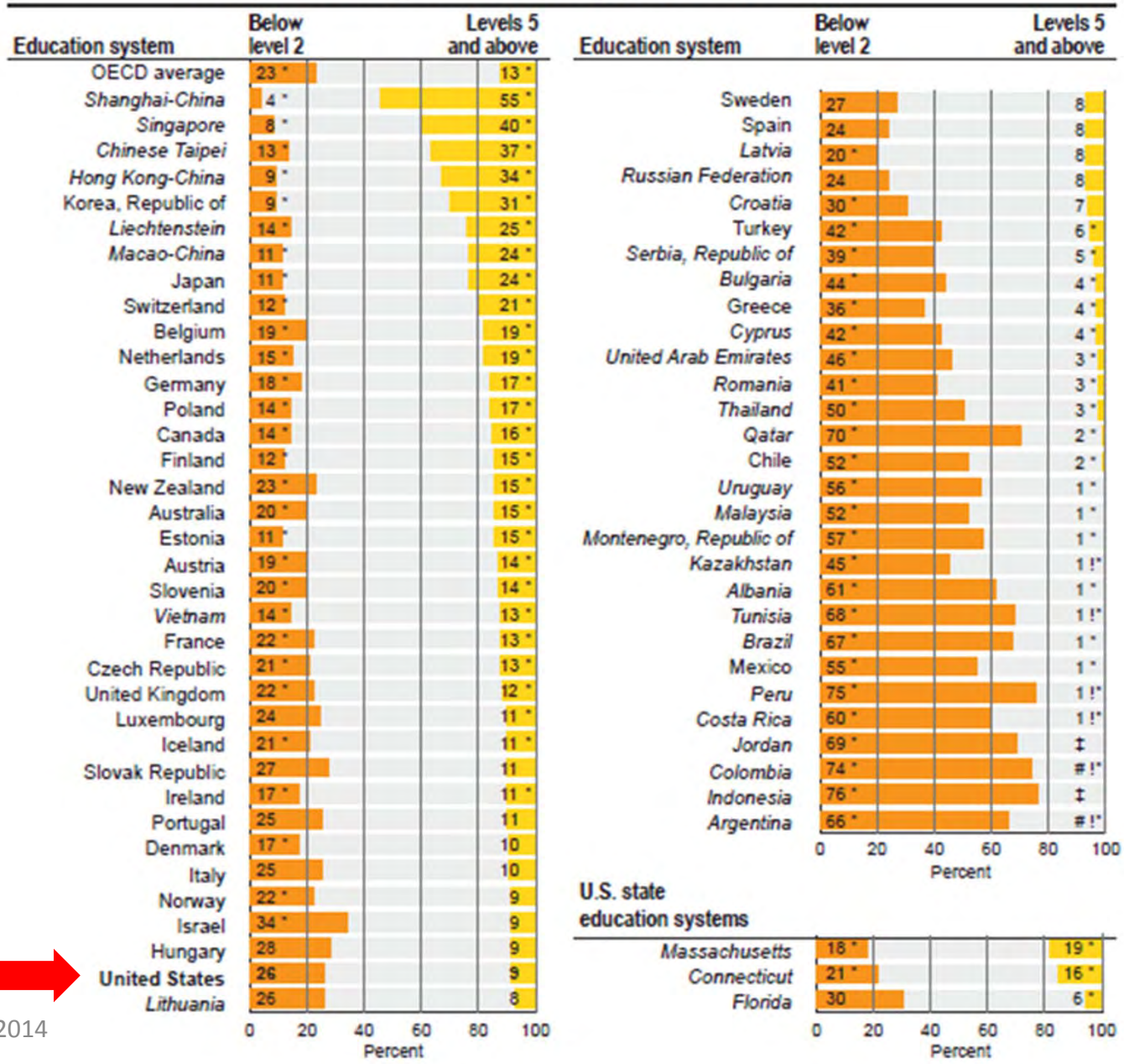
Figure 1. Percentage of 15-year-old students performing at PISA mathematics literacy proficiency levels 5 and above and below level 2, by education system: 2012



PISA Measures Mathematics Literacy

An individual's capacity to formulate, employ, and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts, and tools to describe, explain, and predict phenomena. It assists individuals to recognize the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged, and reflective citizens.

Organization for Economic Cooperation and Development (OECD) 2013, p. 25

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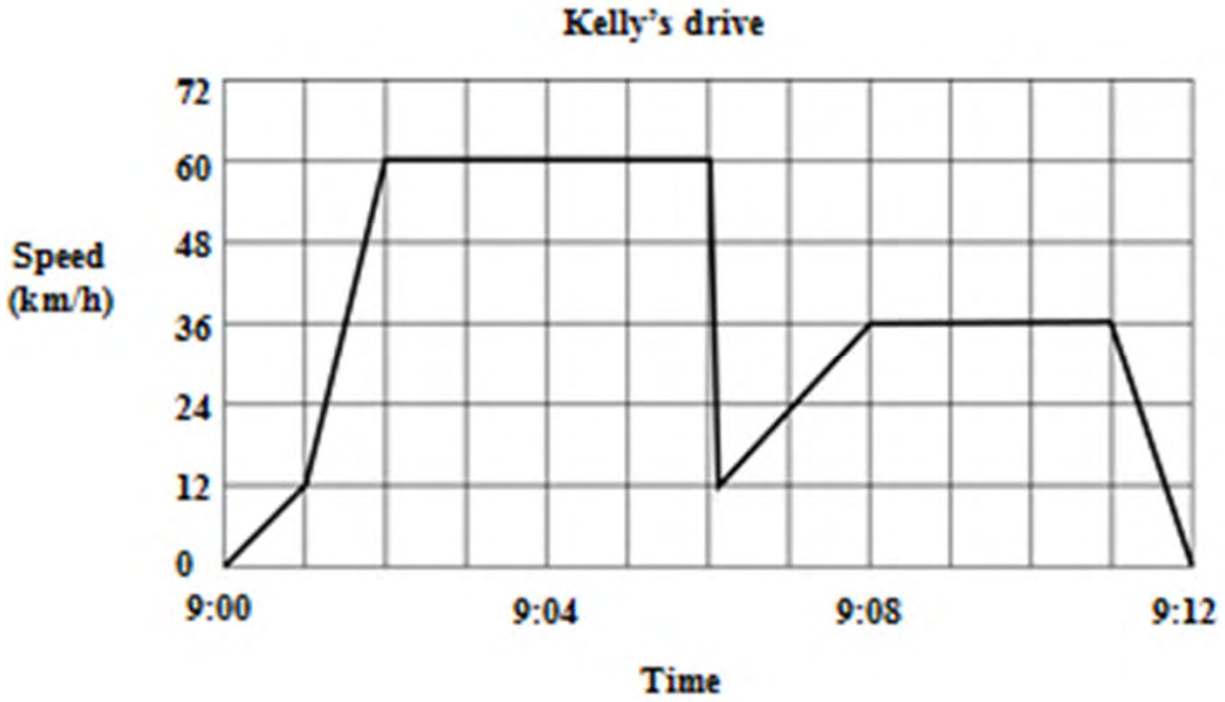
CAR DRIVE

Kelly went for a drive in her car. During the drive, a cat ran in front of the car. Kelly slammed on the brakes and missed the cat.

Slightly shaken, Kelly decided to return home.

The graph below is a simplified record of the car's speed during the drive.



1. What was the maximum speed of the car during the drive?
2. What time was it when Kelly slammed on the brakes to avoid the cat?
3. Was the route Kelly took to return home shorter than the distance she had traveled from home to the place where the incident with the cat occurred? Give an explanation to support your answer, using information given in the graph.

Diane J. Briars, April 2014

Released PISA Item

SAUCE

Question 2: SAUCE

You are making your own dressing for a salad.

Here is a recipe for 100 milliliters (mL) of dressing.

Salad oil:	60 mL
Vinegar:	30 mL
Soy sauce:	10 mL

How many milliliters (mL) of salad oil do you need to make 150 mL of this dressing?

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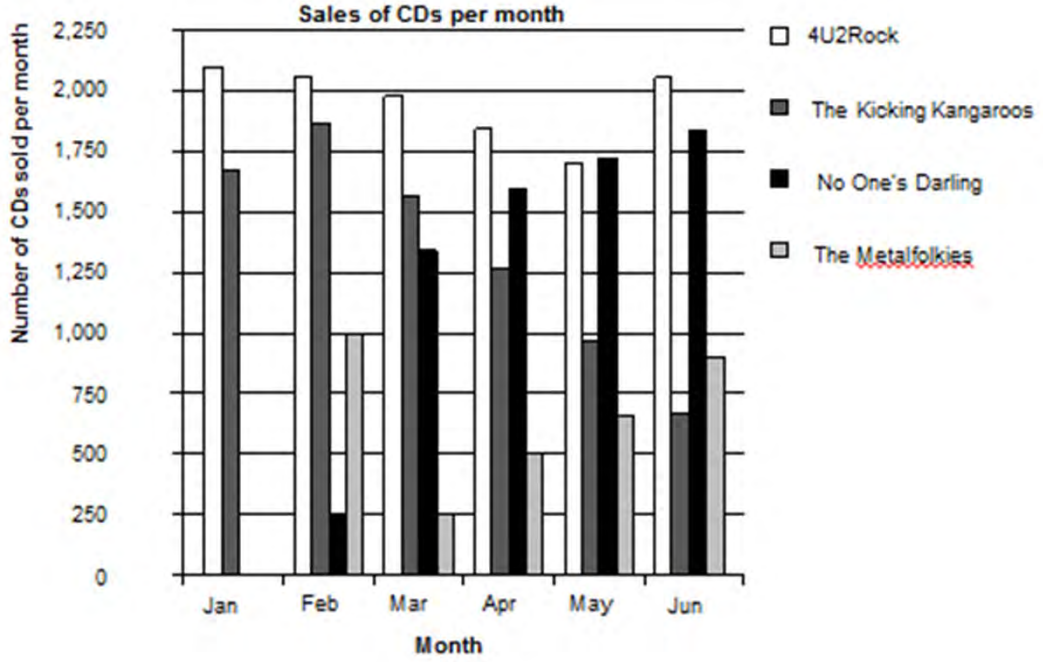
CHARTS

In January, the new CDs of the bands *4U2Rock* and *The Kicking Kangaroos* were released. In February, the CDs of the bands *No One's Darling* and *The Metalfolkies* followed. The following graph shows the sales of the bands' CDs from January to June.



1. How many CDs did the band *The Metalfolkies* sell in April?
2. In which month did the band *No One's Darling* sell more CDs than the band *The Kicking Kangaroos* for the first time?
3. The manager of *The Kicking Kangaroos* is worried because the number of their CDs that sold decreased from February to June.

   What is the estimate of their sales volume for July if the same negative trend continues?

Diane J. Briars, April 2014

Systemic Improvement

- Eliminate persistent racial, ethnic, and income achievement gaps so that all students have opportunities and supports to achieve high levels of mathematics learning
- Increase the level of mathematics learning of all students, so that they are college and career ready when they graduate from high school
- Increase the number of high school graduates, especially those from traditionally underrepresented groups, who are interested in, and prepared for, STEM careers

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Principles to Actions:
Ensuring Mathematical Success for All

- The principles and actions, including specific teaching practices, that are essential for a high-quality mathematics education for all students
- What it will take to turn the opportunity of the Common Core into reality in every classroom, school, and district

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Priorities

- *Principles to Actions*: Support systemic improvement in mathematics teaching and learning for all students.
- Advocate for and support implementation of the Common Core State Standards
  - Focus and coherence that provides time for research-based instructional practices
  - Supports development of more rigorous, focused, and coherent resources
  - Recognize the need for periodic, evidence-based refinement of CCSS
- Join with other mathematics societies in analyzing high school—college pathways in light of recent studies of applications of mathematics

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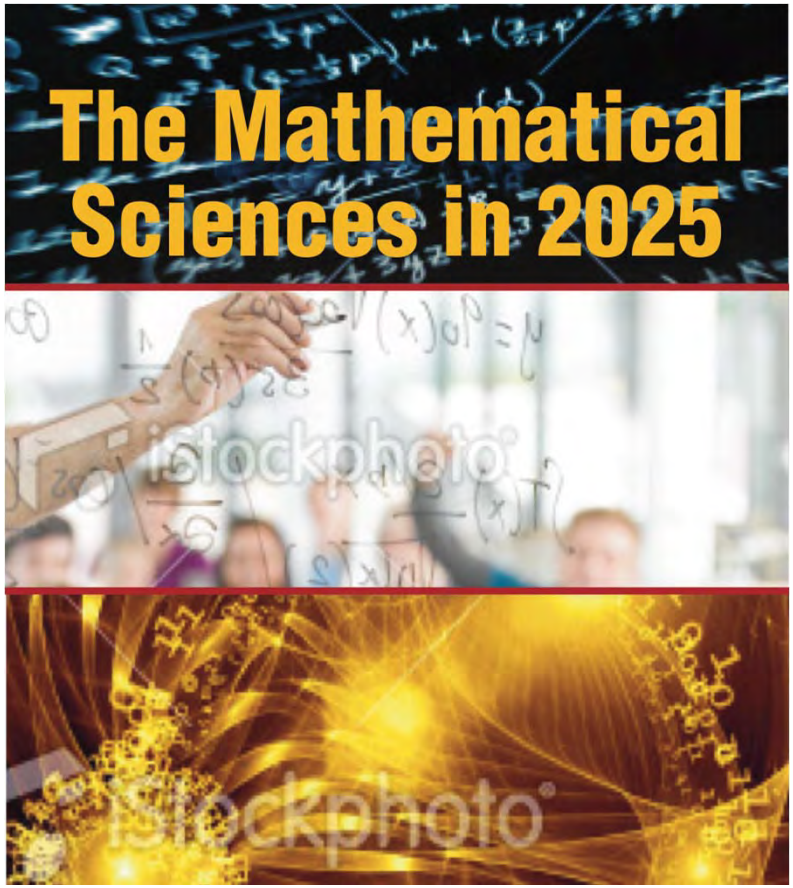
High School/College Pathways



- Examines the mathematical science now and how it needs to evolve to produce the best value for the country by 2025.
- Describes the remarkable success of the mathematical sciences in the opening years of the 21st century.
- Highlights the increasing importance of statistics, modeling and discrete mathematics.

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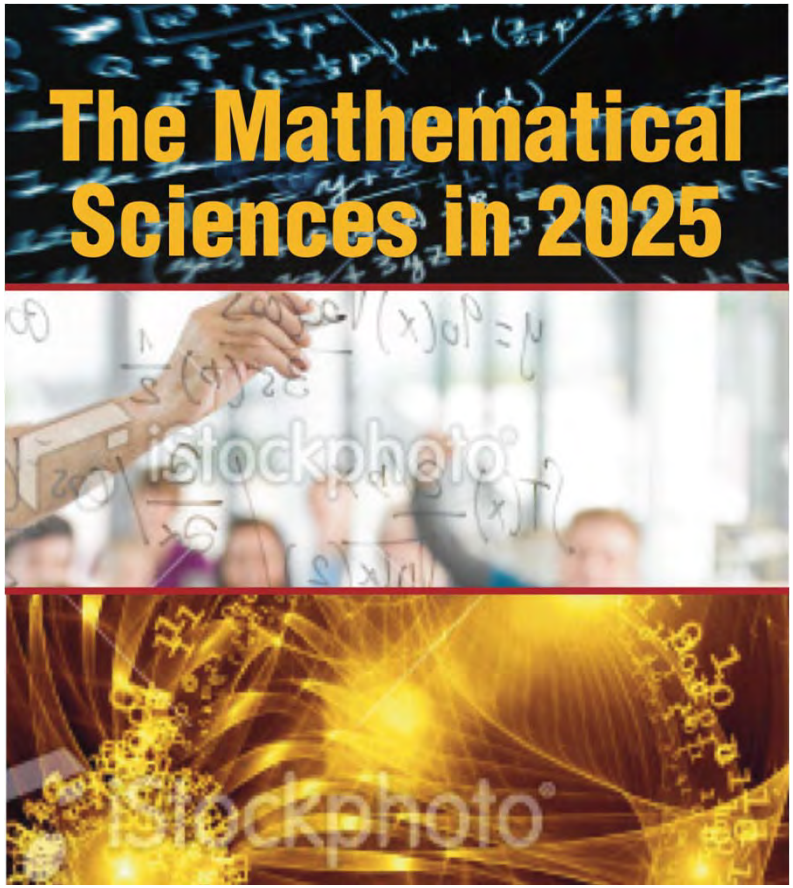
High School/College Pathways



Our high schools focus on getting people prepared for calculus . . .

But we do little to teach statistics, probability, and uncertainty . . .

This is one of the biggest issues facing U.S. mathematical sciences; it is also a big problem in terms of national competitiveness.

http://www.nap.edu/catalog.php?record_id=15269

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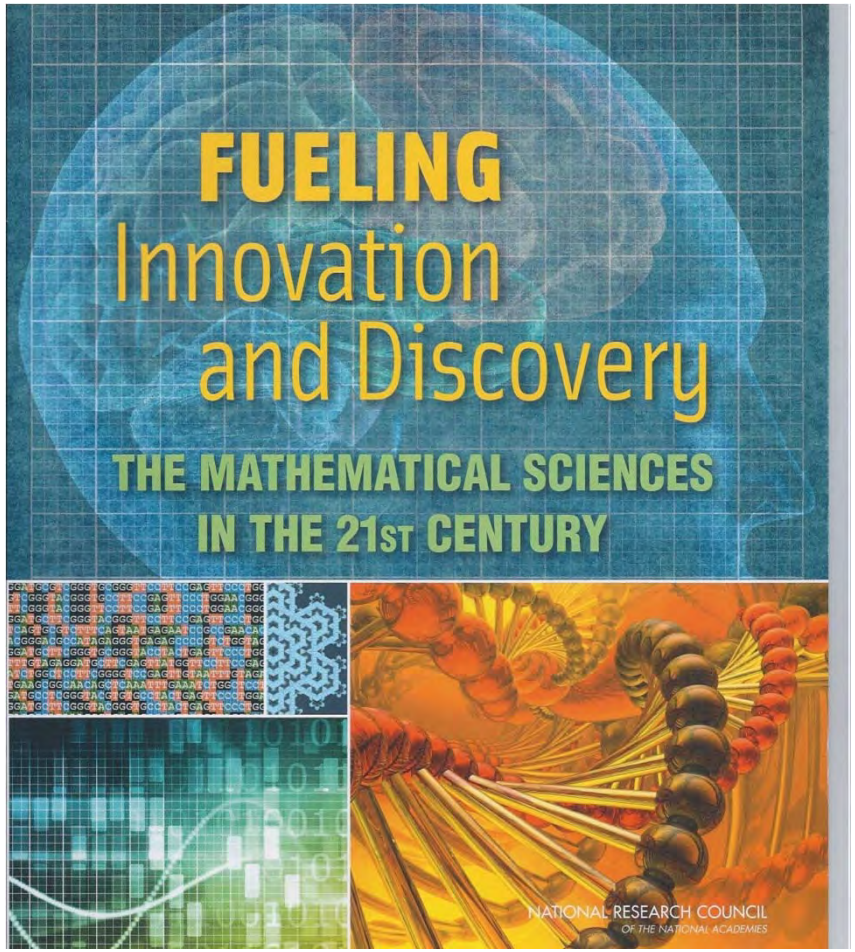
From the NRC Board on Mathematical Science and Their Applications



Describes ongoing advances in the mathematical science and how these advances are changing our understanding of the world, creating new technologies and transforming industries.

http://www.nap.edu/catalog.php?record_id=13373

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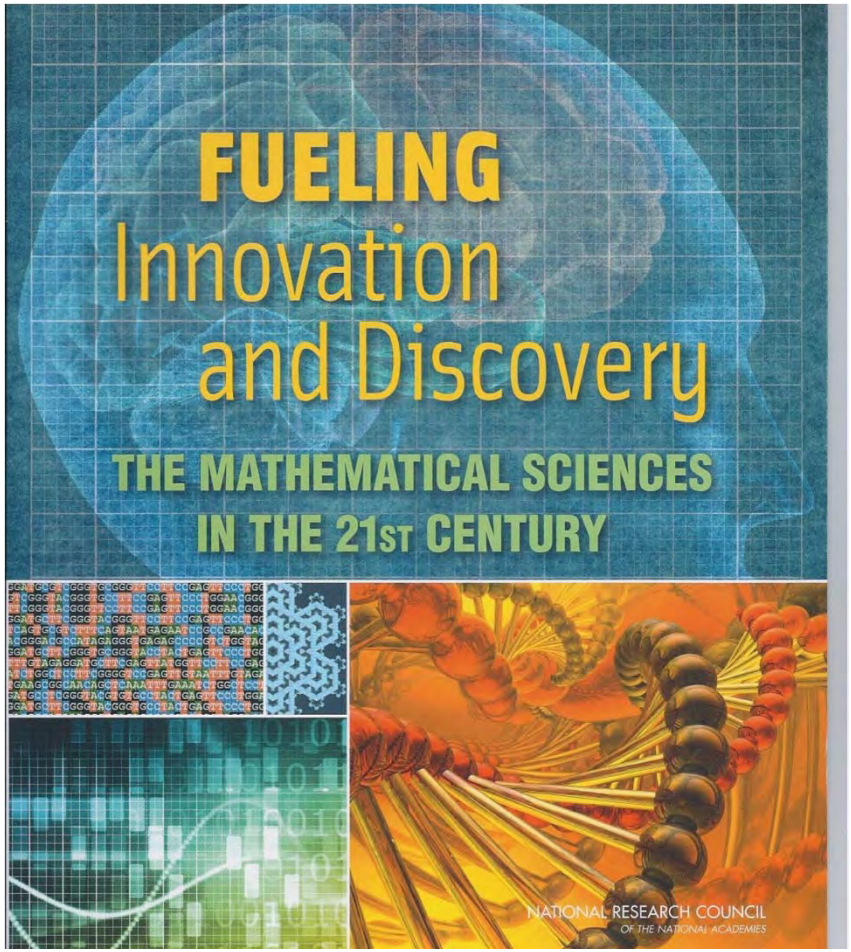
From the NRC Board on Mathematical Science and Their Applications



Purpose:

- Communicate the possibilities of applied mathematics.
- Interest K-12 students in STEM careers.

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http://www.nap.edu/catalog.php?record_id=13373

Priorities

- *Principles to Actions*: Support systemic improvement in mathematics teaching and learning for all students.
- Advocate for and support implementation of the Common Core State Standards
- Join with other mathematics societies in analyzing high school—college pathways
- Access and equity

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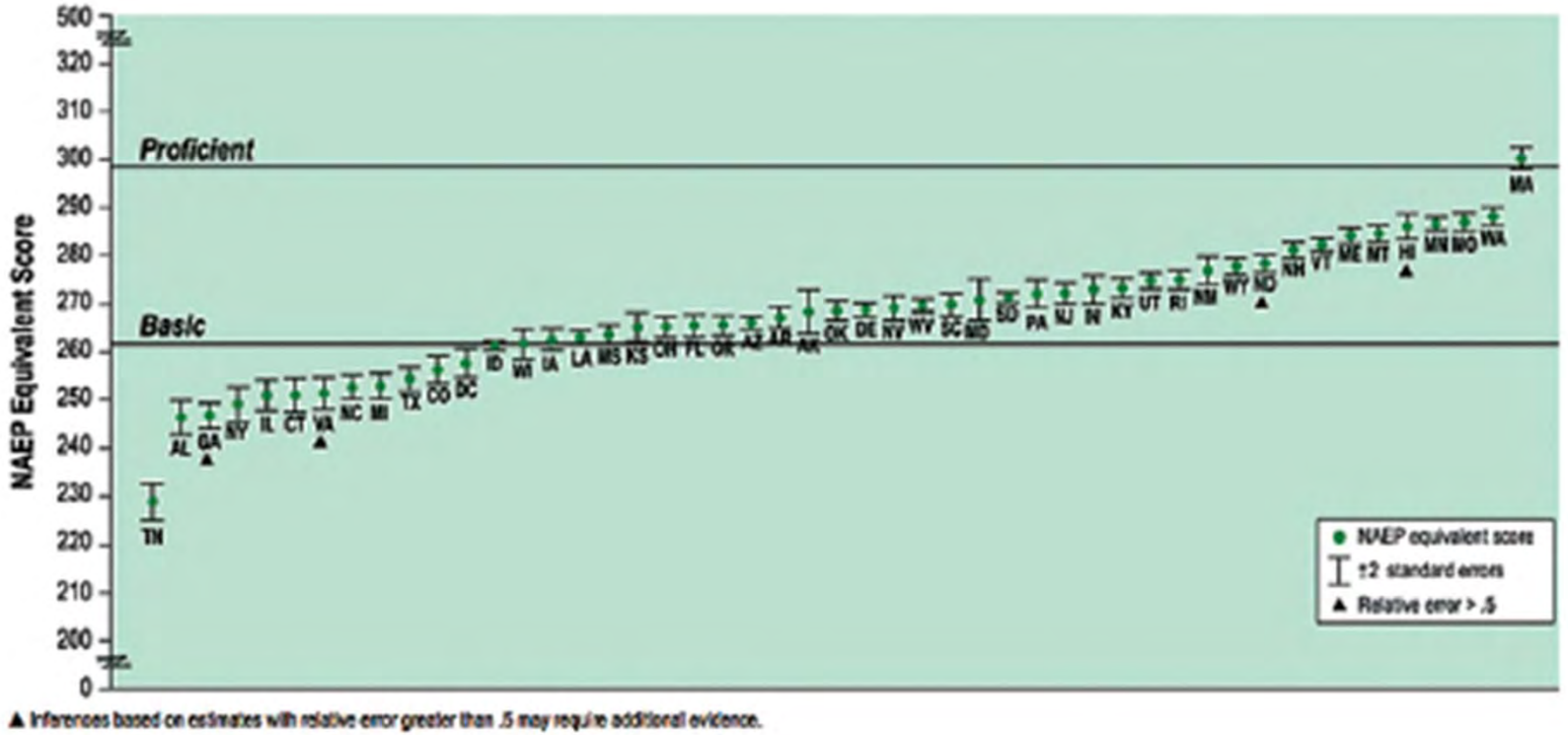
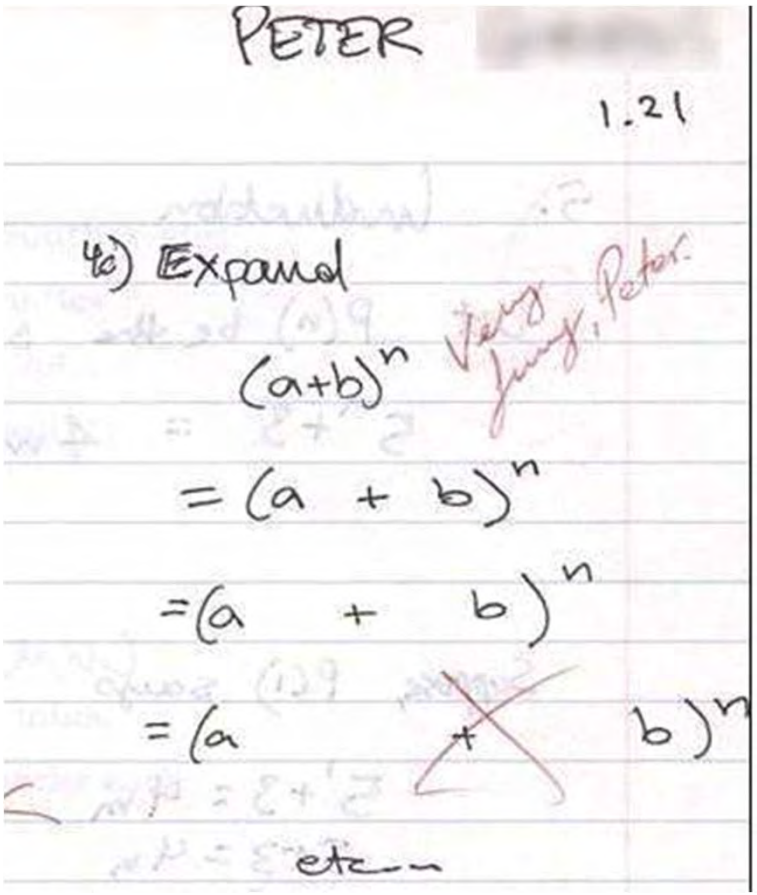
Assessment Challenges



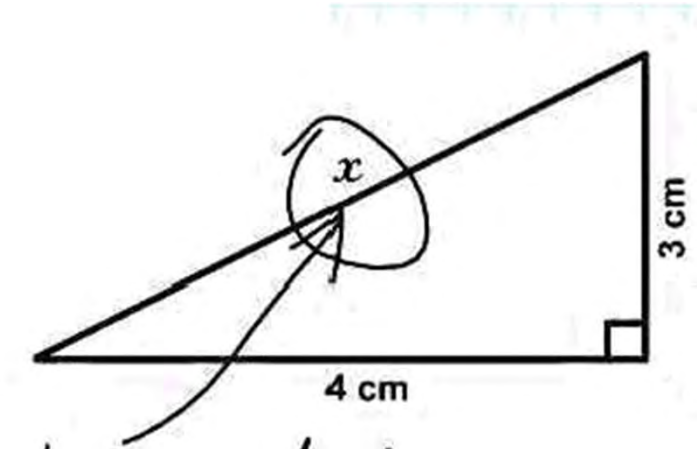
Source: Bandeira de Mello (2011)

The Students' View

Expand $(a + b)^n$



Find *x* in the triangle below



Productive or Unproductive Belief?

1. The primary purpose of assessment is accountability for students through report card marks or grades.
2. Multiple data sources are needed to provide an accurate picture of teacher and student performance.
3. Multiple-choice and other “objective” paper-and-pencil tests are the best ways to assess mathematical knowledge reliably and accurately.
4. Stopping teaching to review and take practice tests improves students’ performance on high-stakes tests.

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Guiding Principles for School Mathematics

- Teaching and Learning
- Access and Equity
- Curriculum
- Tools and Technology
- **Assessment**
- Professionalism

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Guiding Principles for School Mathematics

Assessment

An excellent mathematics program ensures that assessment is an integral part of instruction, provides evidence of proficiency with important mathematics content and practices, includes a variety of strategies and data sources, and informs feedback to students, instructional decisions and program improvement.

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What is Assessment?

Assessment is the process of gathering evidence about student's knowledge of, ability to use, and disposition towards mathematics and of making inferences based on that evidence for a variety of purposes.

NCTM Assessment Standards for School Mathematics, 1995.

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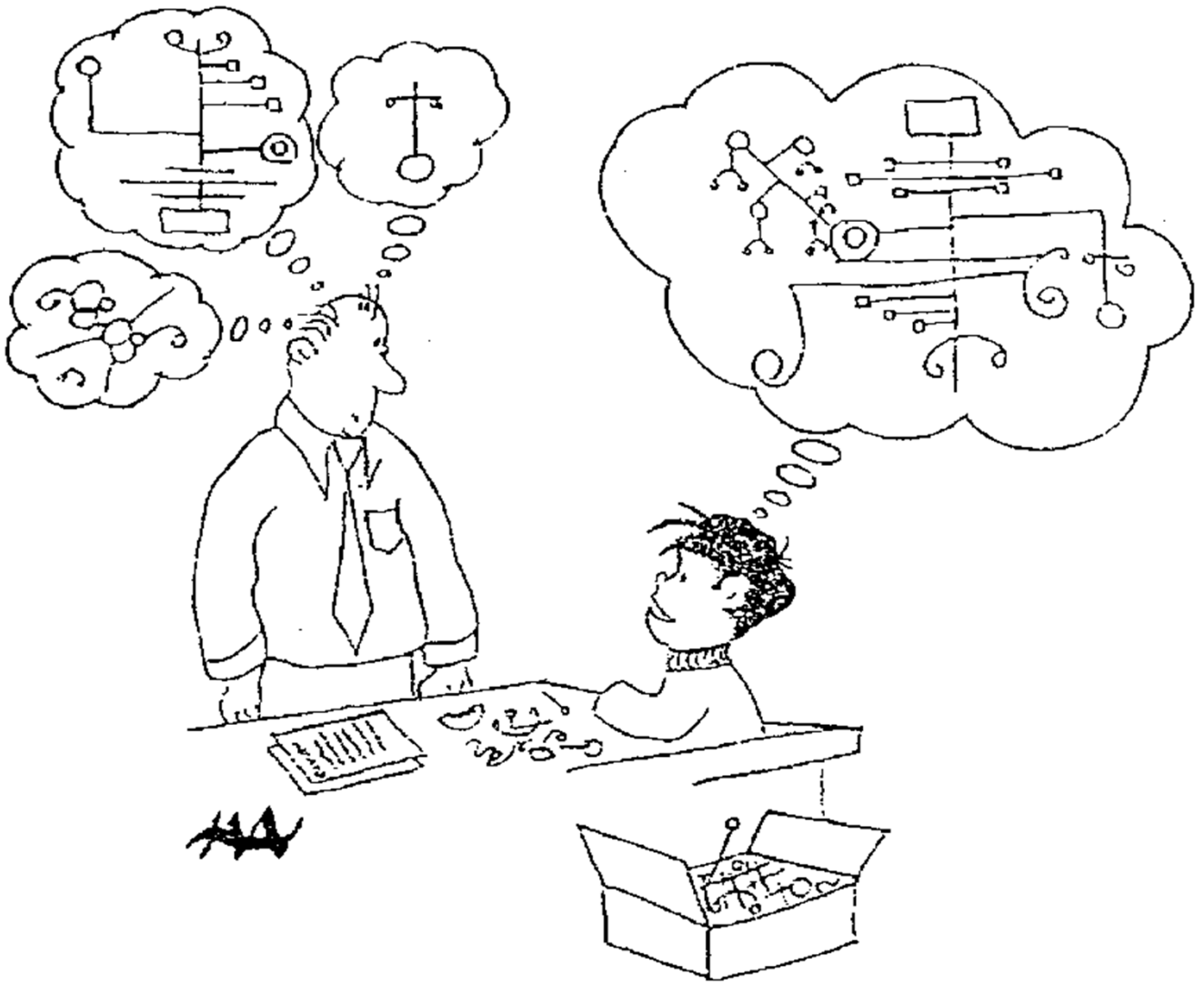

Harold Asturias, 1995

Assessment Purposes

- *Monitoring students' progress* to promote student learning
- *Making instructional decisions* to modify instruction to facilitate student learning
- *Evaluating students' achievement* to summarize and report students' demonstrated understanding at a particular moment in time
- *Evaluating programs* to make decisions about instructional programs

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Assessment Challenges of CCSS

- **Emphasis on Rigor:**
  In major topics, pursue **conceptual understanding**, procedural skill and fluency, and application.

Curriculum Standards, Not Assessment Standards

Define, evaluate, and compare functions. (8.F)

1. Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.

Dimensions of Mathematical Understanding in CCSS

Skill-algorithm understanding

from the rote application of an algorithm through the selection and comparison of algorithms to the invention of new algorithms (calculators and computers included)

Property-proof understanding

from the rote justification of a property through the derivation of properties to the proofs of new properties

Use-application understanding

from the rote application of mathematics in the real world through the use of mathematical models to the invention of new models

Representation-metaphor understanding

from the rote representations of mathematical ideas through the analysis of such representations to the invention of new representations

Vocabulary

Problem Solving

Zalman Usiskin, 2012

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Assessment Challenges of CCSS Standards for Mathematical Practice

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

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Guiding Principles for School Mathematics

Assessment

An excellent mathematics program ensures that assessment is an integral part of instruction, ***provides evidence of proficiency with important mathematics content and practices****, includes a variety of strategies and data sources, and informs feedback to students, instructional decisions and program improvement.*

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What is Proficiency?

7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

What assessment tasks would you use to assess students' proficiency with this standard?

What is Proficiency?

7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

- Compute discount price? Total price with tax?
- Find the cost, given amount including tax and tax rate?
- Compute item cost, given both discount rate and tax rate?

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TV Sales-Part A (PARCC Grade 7)

A store is advertising a sale with 10% off all items in the store. Sales tax is 5%.

A 32-inch television is regularly priced at $295.00. What is the total price of the television, including sales tax, if it was purchased on sale? Fill in the blank to complete the sentence. Round your answer to the nearest cent.

The total cost of the television is $ _____ .

Submit Answer

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TV Sales-Part B (PARCC Grade 7)

Part

Write your answers to the following problem in your answer booklet.

A store is advertising a sale with 10% off all items in the store. Sales tax is 5%.

Adam and Brandi are customers discussing how the discount and tax will be calculated.

Here is Adam's process for finding the total cost for any item in the store.

- Take 10% off the original price.
- Then, add the sales tax to the discounted price.

Adam represents his process as:

$$T = \underbrace{0.9p}_{\text{sale price}} + \underbrace{0.05(0.9p)}_{\text{sales tax}}$$

Here is Brandi's process for finding the total cost for any item in the store.

- Determine the original price of the item, including sales tax.
- Then, take 10% off.

Brandi represents her process as:

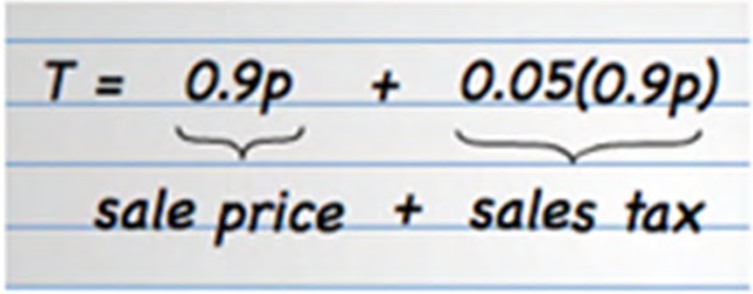
$$T = \underbrace{1.05p}_{\text{T.V. price plus tax}} - \underbrace{0.10(1.05p)}_{\text{10\% off discount}}$$

In both equations, T represents the total cost of the television and p represents the regular price.

Are they both correct? Use the properties of operations to justify your answer.

TV Sales-Part B (PARCC Grade 7)

Adam's Process



T = 1(0.9*p)* + 0.05(0.9*p*)

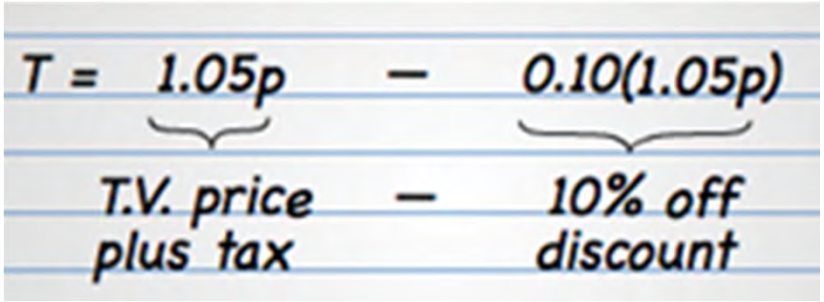
= (1 + 0.05)(0.9*p*)

= (1.05)(0.9*p*)

= (1.05)(0.9)*p*

= 0.945*p*

Brandi's Process



T = 1(1.05p) – (0.10)(1.05p)

= (1 – 0.10)(1.05*p*)

= (0.9)(1.05*p*)

= (1.05)(0.9)*p*

= 0.945*p*

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TV Sales-Extension
(PARCC Grade 7)

A store is advertising a sale with 10% off all items in the store. Sales tax is 5%.

A 32-inch television is regularly priced at $295.00. What is the total price of the television, including sales tax, if it was purchased on sale? Fill in the blank to complete the sentence. Round your answer to the nearest cent.

Amy says, "A 10% discount with 5% sales tax is the same as a 5% discount because 10% – 5% = 5%.

Is Amy correct? Use properties of operations to justify your answer.

Tasks Clarify Expectations

- Range of content
- Depth of knowledge
- Type of reasoning and evidence of it
- Types of applications

Assessment Practice #1

Create and use common grade/course high-quality assessments:

1. Create common assessments *in advance* of the unit:
   - Unit exams, Unit quizzes, Final exams
2. Common point allocations/scoring rubrics *in advance* of the exam.
3. Common scoring and grading feedback

Tasks Clarify Expectations

PARCC

"[The prototypes] are designed to shine a light on important elements of the CCSS . . . "

SBAC

"The sample items and tasks illustrate the knowledge and skills students will be expected to demonstrate on the Smarter Balanced assessments, giving educators clear benchmarks to inform their instruction."

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Assessment Practice #2

Collaboratively analyze SBAC and PARCC prototype assessment tasks to develop common understanding of CCSS-M proficiency expectations.

View actual prototypes at:

PARCC: http://www.parcconline.org

SBAC: http://smarterbalanced.org

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2. Collaboratively Analyze PARCC & SBAC Prototypes

- Compare and contrast them to typical assessment items.
- To what extent do they:
  - Assess conceptual understanding as well as procedural skills?
  - Include higher cognitive demand tasks? Evidence?
  - Assess the Standards for Mathematical Practice? Evidence?
- What are the characteristics of tasks that assess conceptual understanding and/or the Standards for Mathematical Practice?

SBAC Grades 3-5

43023

A rectangle is 6 feet long and has a perimeter of $20\frac{1}{3}$ feet.

What is width of this rectangle? Explain how you solved this problem.

PARCC Grade 4

Grade 4: Deer in the Park

Write your answers to the following problem in your answer booklet

The perimeter of the rectangular state park shown is 42 miles.

A ranger estimates that there are 9 deer in each square miles of the park.

If this estimate is correct, how many total deer are in the park? Explain your answer using numbers, symbols, and words.

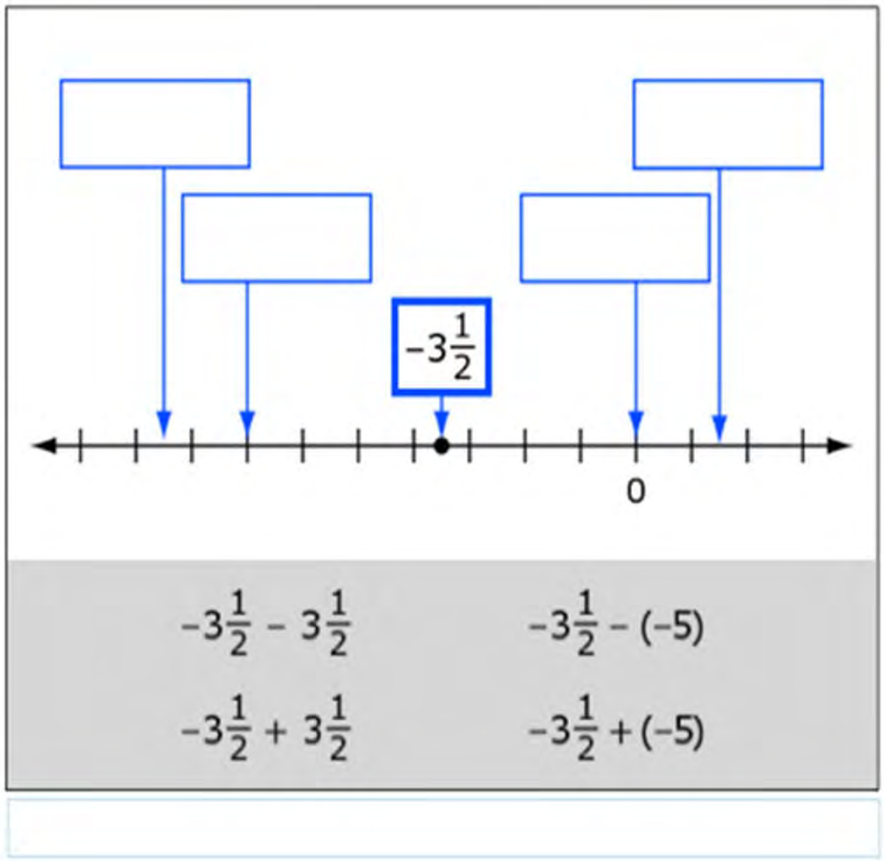
OF
MATICS

SBAC Grade 7

42960

The point on the number line shows the location of $-3\frac{1}{2}$.

Move each expression into a box to show its correct location on the number line.



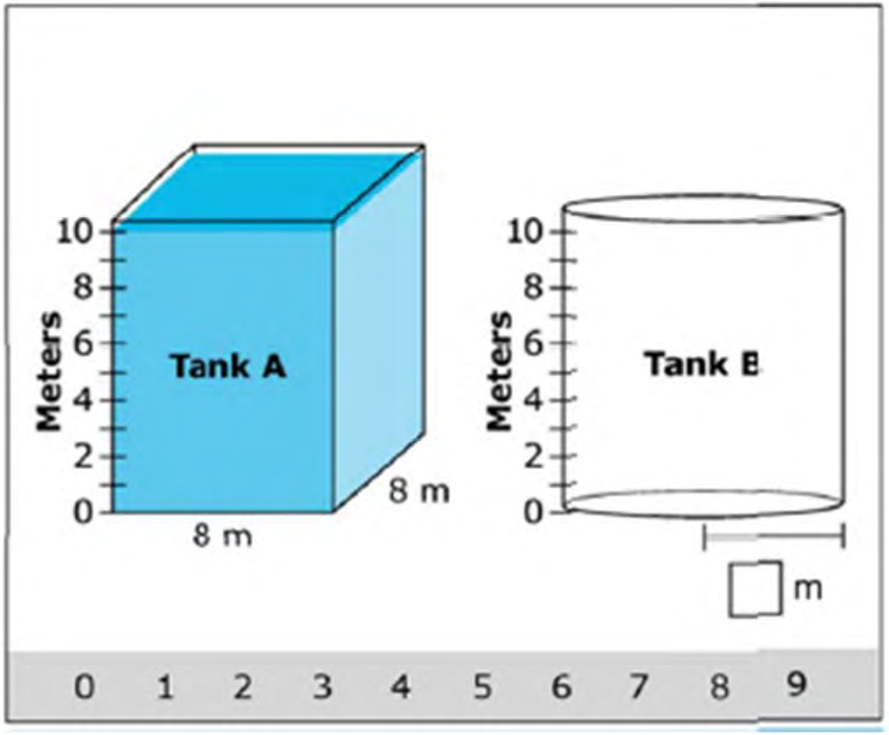
Water Tank (SBAC HS)

Two water tanks are shown. Tank A is a rectangular prism and Tank B is a cylinder. The tanks are not drawn to scale.

Tank A is filled with water to the 10-meter mark.

Click Tank A to change the water level. The volume of water that leaves Tank A is transferred to Tank B and the height of the water in Tank B is shown.

Drag one number into the box to show the approximate radius of the base of Tank B.



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Assessment Practice #3

Increase the cognitive demand of your assessments.

- Systemically incorporate tasks that assess conceptual understanding and mathematical practices into:
  - District assessments
  - School assessments
  - Classroom assessments

Understanding a Concept

- Explain it to someone else
- Represent it in multiple ways
- Apply it to solve simple and complex problems
- Reverse givens and unknowns
- Compare and contrast it to other concepts
- Use it as the foundation for learning other concepts

(New Standards Project, 1996)

Tasks That Support Valid Inferences

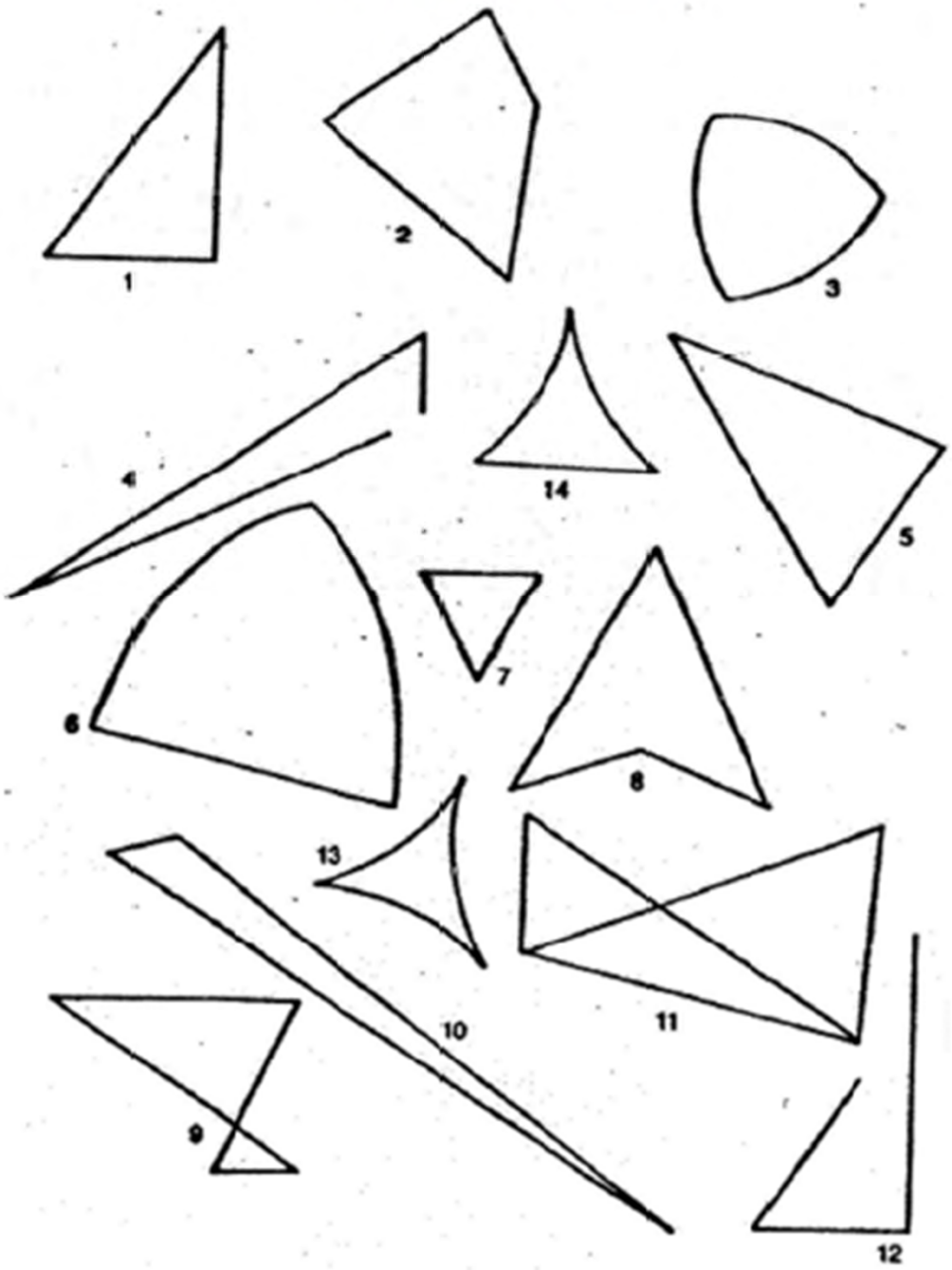
Learning target:

Understanding the definition of a triangle.

Performance task:

Draw a triangle.

Circle All the Triangles



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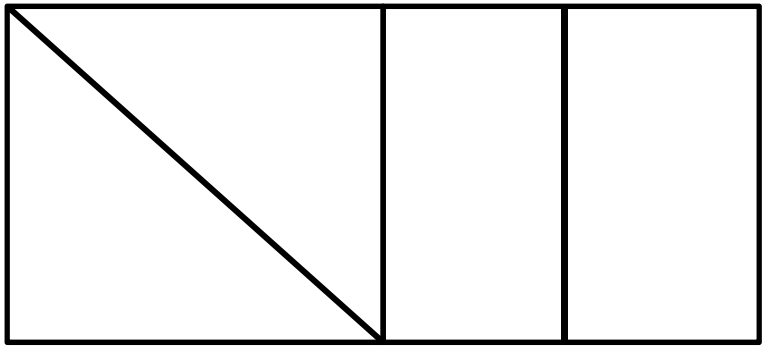
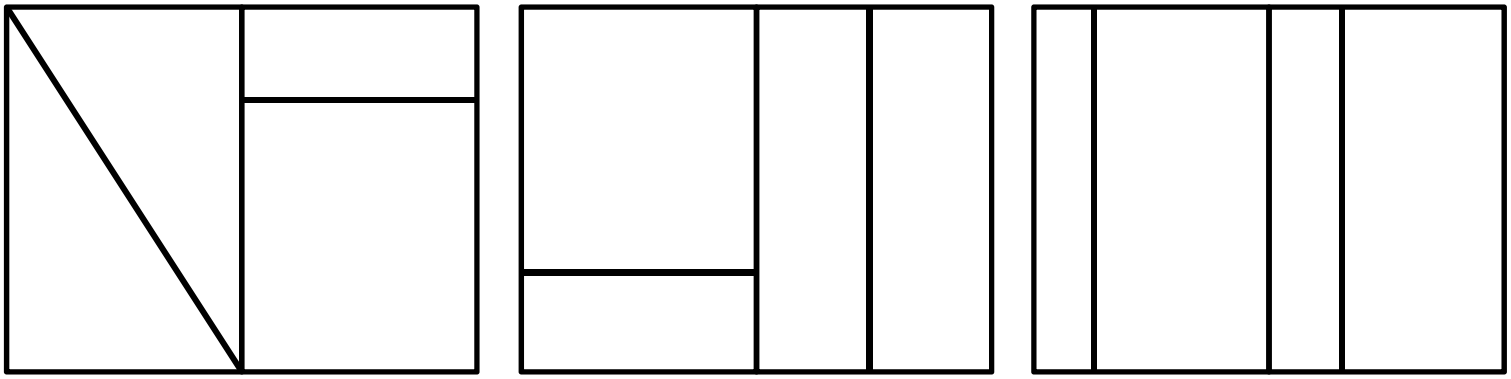
Grade 2

2.G.3. Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.

Grade 2





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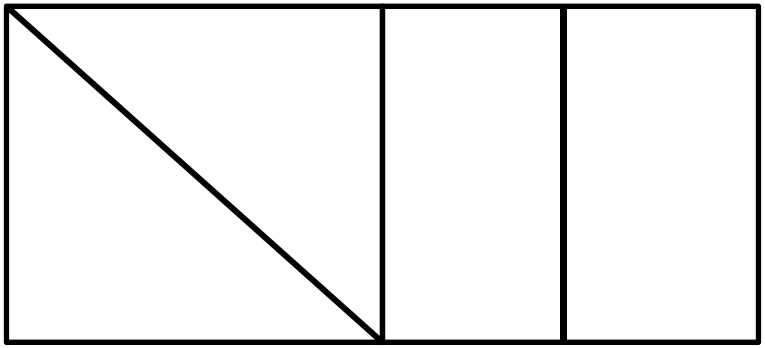
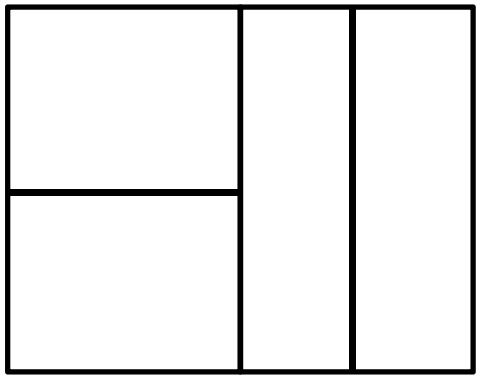
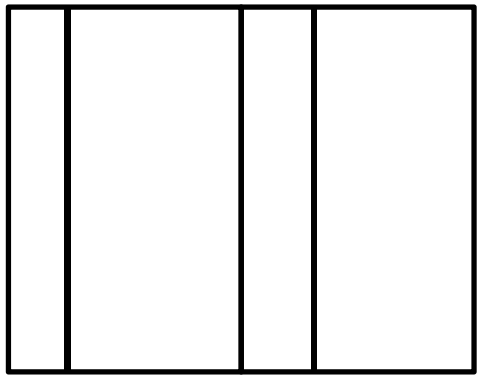
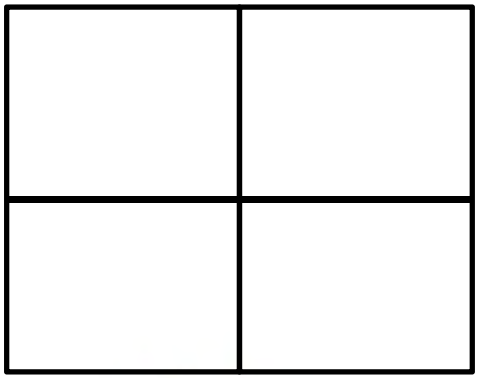
Grade 2









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Algebra 1 Proficiency Test Item

At the school carnival, Carmen sold 3 times as many hot dogs as Shawn. The two of them sold 152 hot dogs altogether. How many hot dogs did Carmen sell?

a. 13 b. 38 c. 51 d. 114 e. 148

b. 38

d. 114 

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Algebra 1 Proficiency Test Item

At the school carnival, Carmen sold 3 times as many hot dogs as Shawn. The two of them sold 152 hot dogs altogether.

1. How many hot dogs did Shawn sell?

a. 13 b. 38 c. 51 d. 114 e. 148

2. How many hot dogs did Carmen sell?

a. 13 b. 38 c. 51 d. 114 e. 148

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Guiding Principles for School Mathematics

Assessment

An excellent mathematics program ensures that assessment is an integral part of instruction, ***provides evidence of proficiency with important mathematics content and practices****, includes a variety of strategies and data sources, and* ***informs feedback to students****, instructional decisions and program improvement.*

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Assessment Practice #4

Teach students to take responsibility for their learning

1. Provide clear and understandable learning targets.
2. Provide clear expectations about work quality, e.g., examples of strong and weak work.
3. Offer regular descriptive feedback
4. Teach students to self assess and set goals

Providing Feedback to Learners

Type of Feedback	*Gain*	*Student Attitudes*
grades	None	Top students = positive reaction Bottom students = negative reaction
comments	30%	All students = positive reaction
grades & comments	?	?

What do you think happened for the students given both grades and comments?

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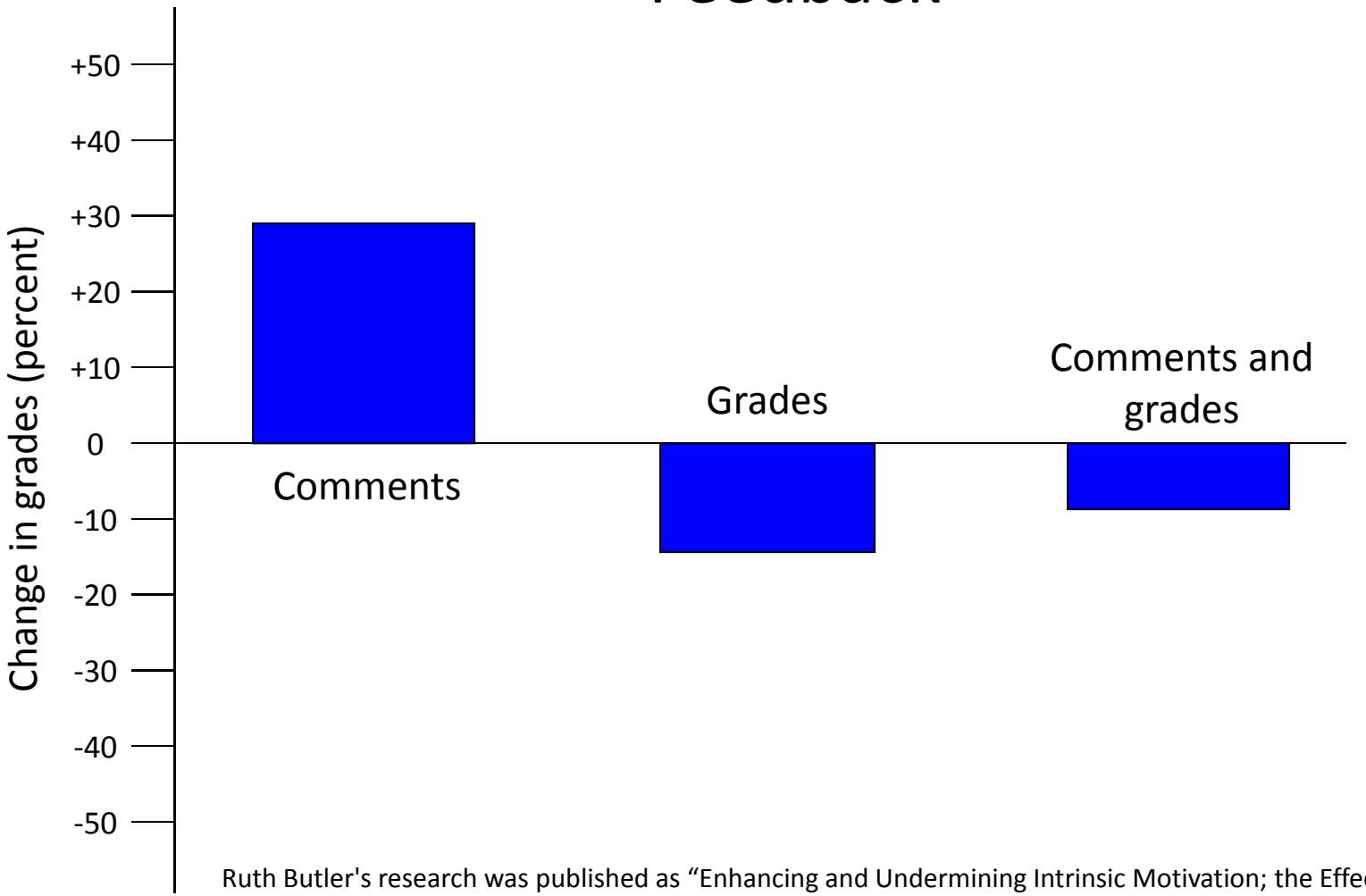
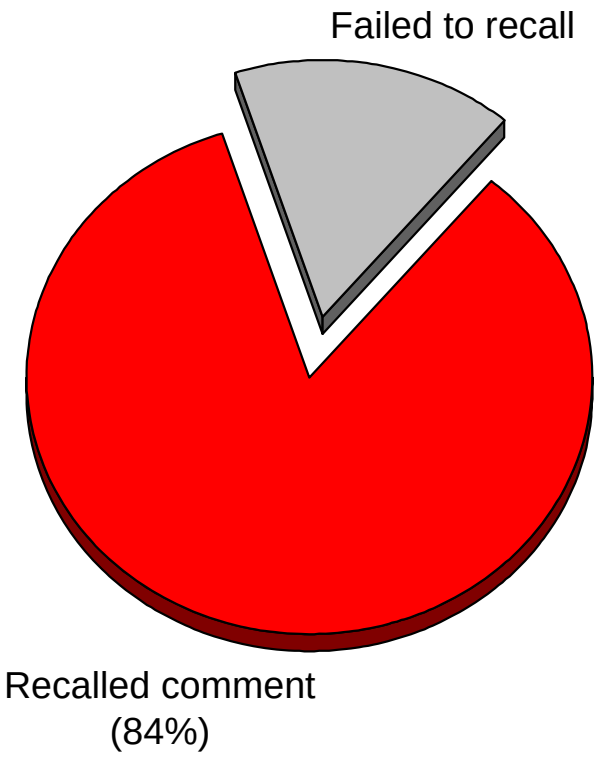
Overall Improvement After Two Rounds of Feedback



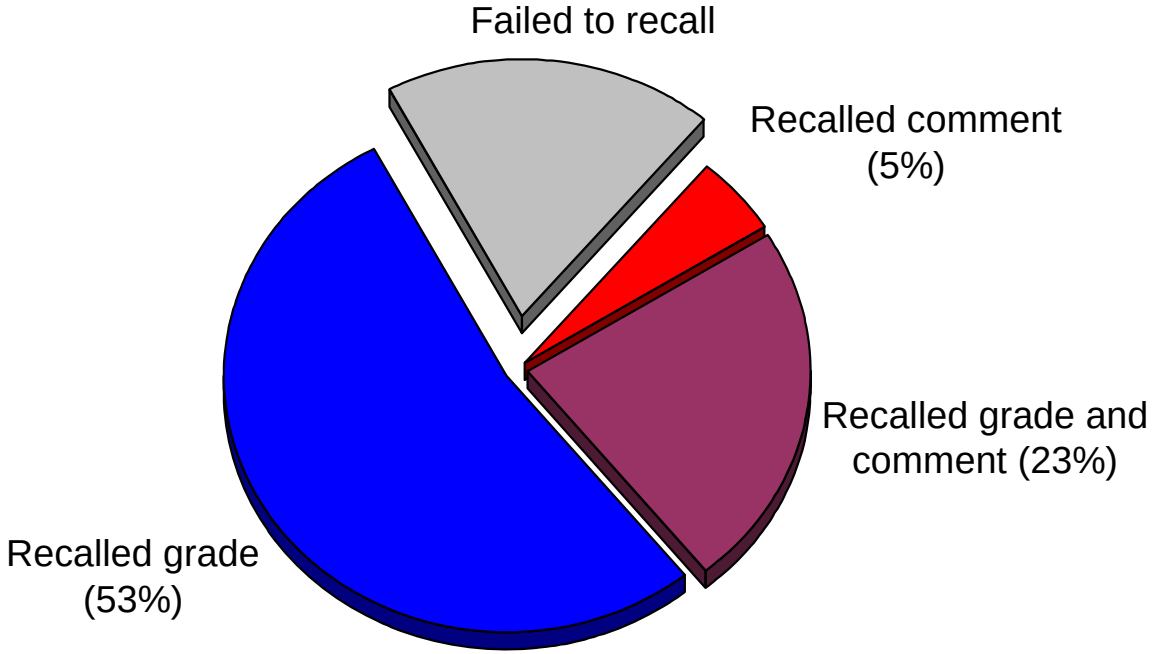
Ruth Butler's research was published as "Enhancing and Undermining Intrinsic Motivation; the Effects of Task-involving and Ego-involving Evaluation on Interest and Performance",
British Journal of Educational Psychology, vol. 58, pp. 1-14.

What students recalled

Comments group



Comment and grade group



A Routine for Reviewing Assessments

Review end-of-unit assessment

Read your teacher's comments. If you don't understand a comment, ask your partner for help. Ask your teacher only if your partner can't help you.

- Green = I understand all of the ideas in the problem.
- Yellow = I understand some/most of the ideas.
- Red = I don't understand most of the ideas in the problem.

Correct the problems that you got wrong but now understand.

- Discuss and review only problems that either you or your partner got wrong.
- Correct remaining problems that you now understand.
- Check your corrections with your partner to make sure your answers are now correct.

- Place your corrected assessment in the IN side of the folder.
- Be ready to participate in a brief whole-class discussion of the assessment.

Geometry
Unit 1 Quiz

Name: _____ **Reflection date:** _____ **Period:** _____

Chapter 1 student-friendly learning targets:

*A. I can solve linear and quadratic equations.
*B. I can identify and demonstrate understanding of points, lines, and planes.
*C. I can understand when to apply segment addition/bisectors/midpoints rules.
*D. I can determine the midpoint and distance on the coordinate plane.
E. I can classify, measure, and construct angles with precision.
F. I can recognize when to apply angle addition and bisectors rules.
G. I can identify and demonstrate understanding of special angle pairs.
H. I can identify, name, and find the perimeters of polygons.
* Denotes learning targets that were covered on the unit 1 quiz.

Step one: Complete the following table based on your graded quiz.

Problem Number	Learning Target	Correct	Algebra Mistake	Geometry Setup/ Vocabulary Error
1	B	___/3 pts		
2	B	___/3 pts		
3	B	___/4 pts		
4	A	___/3 pts		
5	A	___/3 pts		
6	D	___/3 pts		
7	D	___/2 pts		
8	D	___/2 pts		
9	C	___/5 pts		
10	C	___/5 pts		
11	C	___/5 pts		
12	B	___/2 pts		

Goal-Setting Worksheet

Step two: Determine how many points you earned out of the total number of points for each target.

Learning Target A: ___/6	**Learning Target B:** ___/12
(Questions 4 and 5)	(Questions 1, 2, 3, and 12)
Learning Target C: ___/15	**Learning Target D:** ___/7
(Questions 9, 10, and 11)	(Questions 6, 7, and 8)

- My areas of strength are . . .
- My areas of weakness are . . .
- To prepare for the unit 1 test, I will . . .
  (be specific; for example: "I will redo my notes, which cover my areas of weakness; participate in a re-engagement lesson, which cover my areas of weakness; seek help at the learning center; meet with my teacher; and learn the vocabulary")

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Assessment Practice #4

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2. Provide clear expectations about work quality, e.g., examples of strong and weak work.
3. Offer regular descriptive feedback
4. Teach students to self assess and set goals

Effective Mathematics Teaching Practices

Elicit and Use Evidence of Student Thinking

Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.

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Formative Assessment is:

Students and teachers

Using evidence of learning

To adapt teaching and learning

To meet immediate learning needs

Minute-to-minute and day to day

Dylan Wiliam, University of London

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Assessment Practice #5
Use Assessment Results Formatively

Shift in focus:

- Answers → Students' thinking and understanding

Tools:

- Tasks that are designed to reveal students' understanding and thinking.
- Student work samples
- Commentary and analysis
- Suggestions for intervention

Buying a Television

Seung is saving money to buy a television. He starts saving by putting $40 in an envelope.

Each week Seung adds the same amount of money to the envelope. He does not take any money out of the envelope.

The table below shows the amount of money in the envelope at the end of each week for Seung's first four weeks of saving.

Amount of Money at End of Week

Week	Amount of Money
1	$50
2	$60
3	$70
4	$80

1. What is the amount of money, in dollars, in the envelope at the end of week 8? _____

Show or explain how you got your answer.

2. Write an algebraic expression that could be used to find the amount of money in the envelope at the end of n weeks.

3. What is the amount of money, in dollars, in the envelope at the end of week 28? _____

Show or explain how you got your answer.

4. Determine the number of weeks it will take for the amount of money in the envelope to be exactly $500.

_____

Show or explain how you got your answer.

S3

Buying a Television

Seung is saving money to buy a television. He starts saving by putting $40 in an envelope.

Each week Seung adds the same amount of money to the envelope. He does not take any money out of the envelope.

The table below shows the amount of money in the envelope at the end of each week for Seung's first four weeks of saving.

Amount of Money at End of Week

Week	Amount of Money
1	$50
2	$60
3	$70
4	$80

He adds 10 every week.

1. What is the amount of money, in dollars, in the envelope at the end of week 8? 160

   Show or explain how you got your answer. 80 at week 4 its 80 so just double it

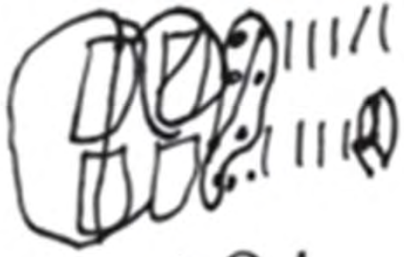
   80
   +80
   160

Solve 408 – 217 using two different strategies. Provide an explanation of both of your strategies. Then check your answer using addition.

Strategy 1	Explain your 1st strategy:
408 – 217 = 191 200 – 10 + 1 = 191 Pull out	Well first I drew 408 - 217 then I subtracted 400 - 200 and as everyone knows 4 - 2 = 2 so we have 208 - 17. You can't take away 1 from 0 so you have to go in to the negitives 0 → 10 = -10 so you put a -10 in the tens colum. Now we do 8 - 7 = 1 for the ones. 200 - 10 + 1 you subtract 10 from 200. 190 + 1 = 191.

Solve 408 – 217 using two different strategies. Provide an explanation of both of your strategies. Then check your answer using addition.

Strategy 2



191

Base ten

Explain your 2nd strategy:

as my second strategy I did base ten. I drew 4 hundreds for 400 and 8 ones for 8. Then I took away 2 hundreds and there is 208-17=? You can't take away 10 from zero so you have to take one of ten then take away 1. Last you count it all up and so 408-217=191.

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Solve 408 – 217 using two different strategies. Provide an explanation of both of your strategies. Then check your answer using addition.

Check your answer using addition:

$$\begin{array}{r} {}^{1}191 \\ +\ 217 \\ \hline 408 \end{array}$$

should be 408

It is so I was right.

Assessment Practice #5
Use Assessment Results Formatively

Shift in focus:

- Answers → Students' thinking and understanding

Tools:

- Tasks that are designed to reveal students' understanding and thinking.
- Student work samples
- Commentary and analysis
- Suggestions for intervention

post-gazette.com
Pittsburgh Post-Gazette

Why I won't let my son take the PSSA

March 31, 2013 12:10 am
By Kathy M. Newman /

I am an English professor. So you can imagine how my pride was hurt when my 9-year-old son Jacob started bringing home low scores on his practice reading tests for the Pennsylvania System of School Assessment.

My husband and I have been helping Jacob with his test-prep reading homework every weeknight this year, and it has been a grim slog. At times I have found myself getting angry when Jacob has fidgeted, or when he has had trouble focusing. Sometimes I have gotten angry when he simply hasn't been able to answer the questions.

Then one day this March it dawned on me. I am getting angry at my son about a test. A test that I do not like. A "high-stakes" test that will put so much pressure on Jacob that it probably will not reflect his true abilities. I also realized something else: Jacob does not love to read.

After doing some research and talking with other parents, my husband and I decided to "opt out" Jacob from the PSSA tests. We are opting him out because we do not like what high-stakes tests are doing to Jacob, to our family, to his teachers, to his school and, ultimately, to our entire education system.

What about "Test-Prep"?

Too often, teachers are putting regular instruction "on hold" to spend class time practicing test questions. While on the surface this may appear to make sense, research indicates just the opposite—

test scores are lower in schools where teachers spend large amounts of time on test prep.

(Allensworth, Correa, & Ponisciak, 2008)

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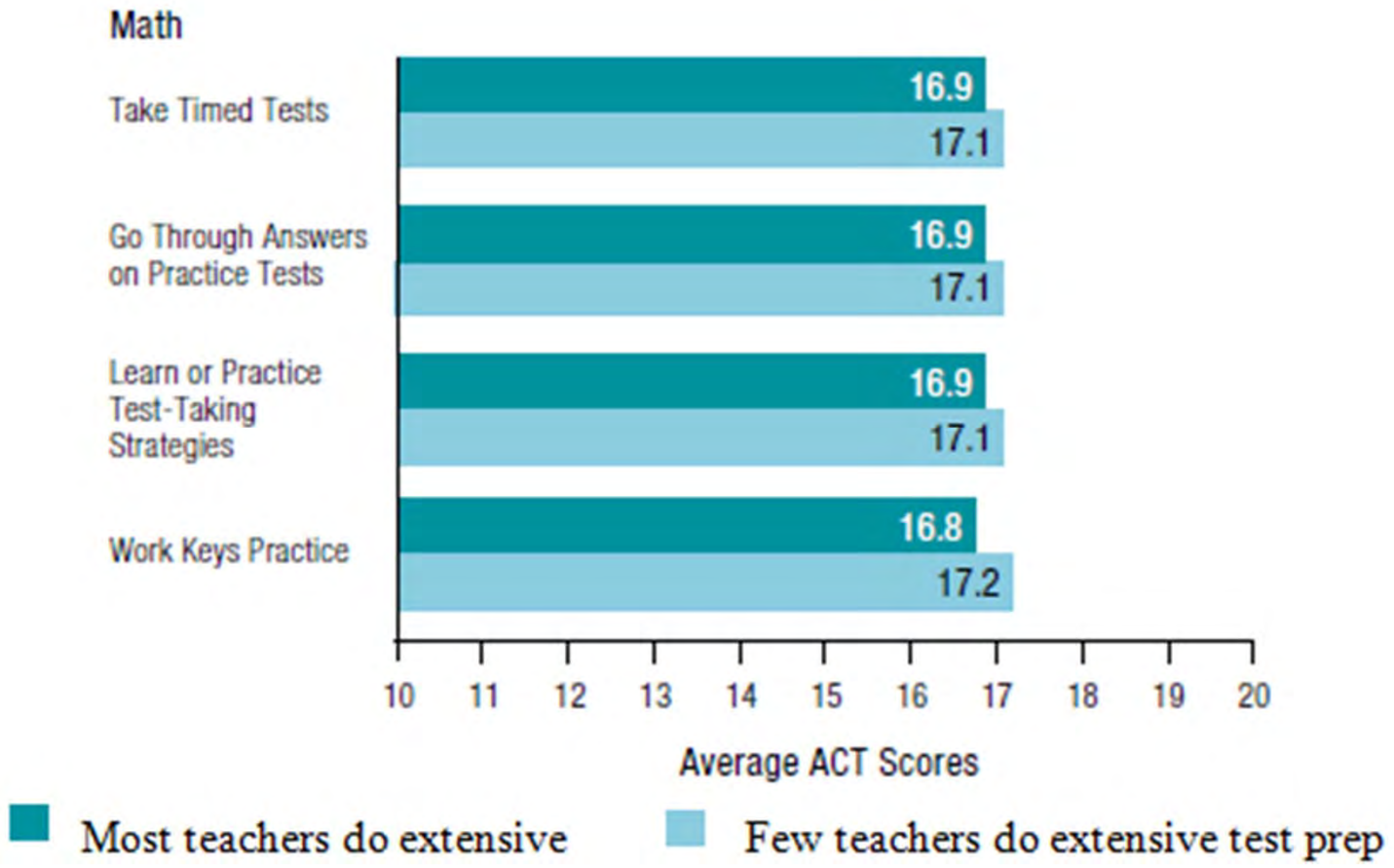
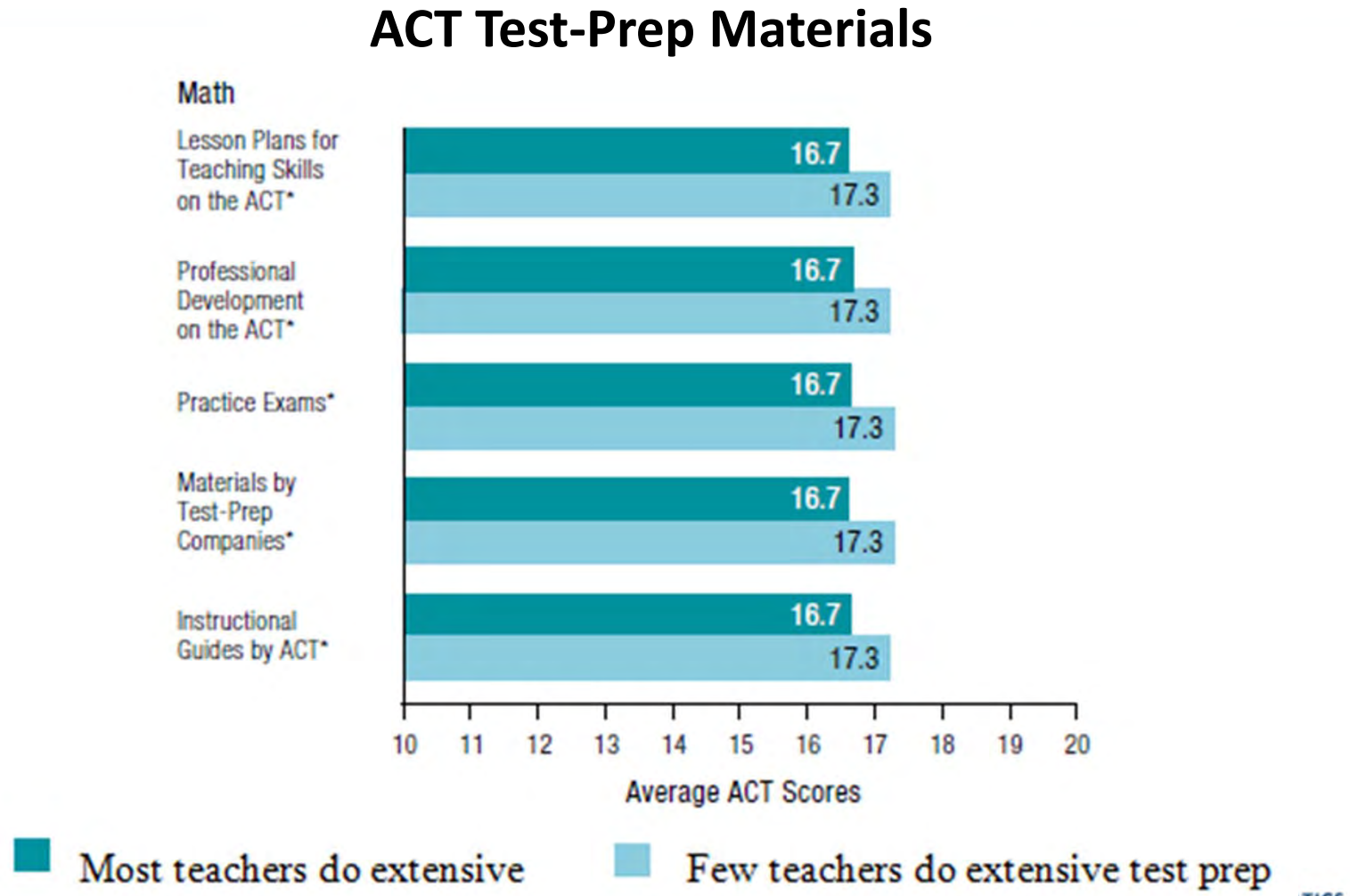
Intensive Test Prep Produces the Same or Lower Scores as Little or No Test Prep

All Test-Prep



(Allensworth, Correa, & Ponisciak, 2008)

Intensive Test Prep Produces the Same or Lower Scores as Little or No Test Prep



(Allensworth, Correa, & Ponisciak, 2008)

Assessment Practice #6.
Ongoing Review and Practice

Providing students with periodic opportunities to practice using concepts and skills, along with feedback about their performance, helps students solidify their knowledge and promotes retention, reflection, generalization, and transfer of knowledge and skill.

IES Practice Guide, 2007

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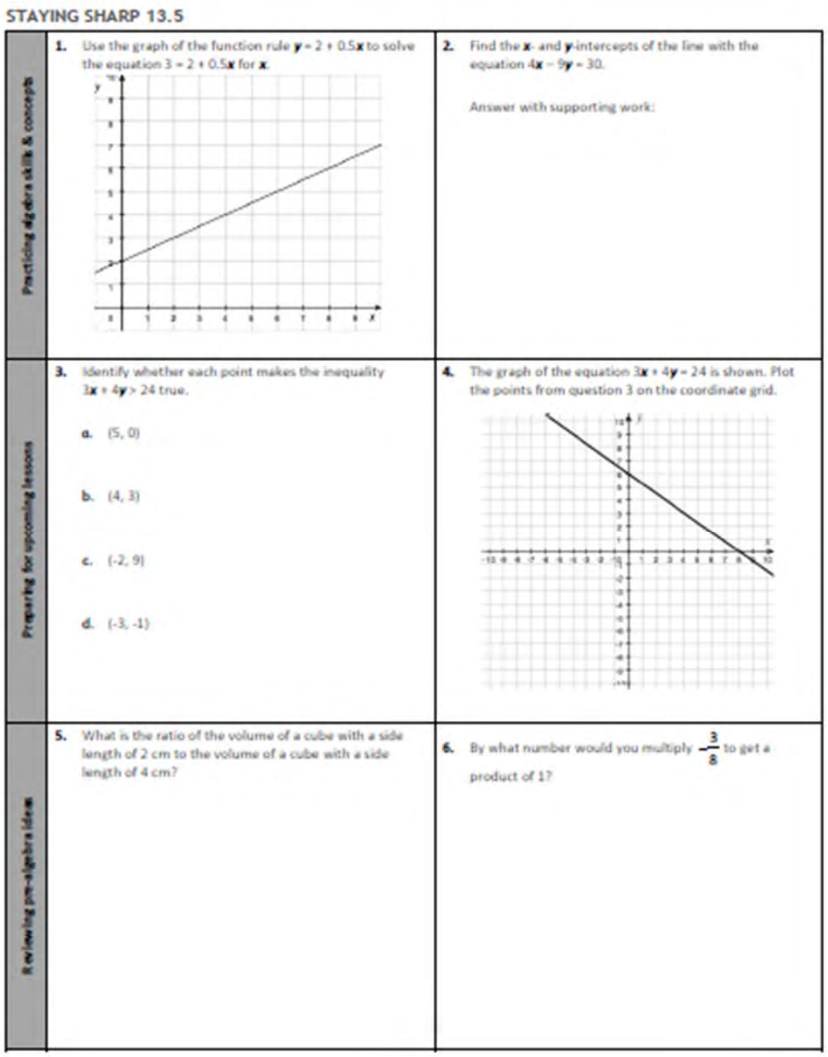
Distributed Practice

- Openers
- Homework
- Incorporate into instructional and/or assessment tasks



STAYING SHARP 13.5

Practicing algebra skills & concepts

1. Use the graph of the function rule $y = 2 + 0.5x$ to solve the equation $3 = 2 + 0.5x$ for x.

2. Find the x- and y-intercepts of the line with the equation $4x - 9y = 30$.

   Answer with supporting work:

Preparing for upcoming lessons

3. Identify whether each point makes the inequality $3x + 4y > 24$ true.

   a. (5, 0)

   b. (4, 3)

   c. (-2, 9)

   d. (-3, -1)

4. The graph of the equation $3x + 4y = 24$ is shown. Plot the points from question 3 on the coordinate grid.

Reviewing pre-algebra ideas

5. What is the ratio of the volume of a cube with a side length of 2 cm to the volume of a cube with a side length of 4 cm?

6. By what number would you multiply $-\frac{3}{8}$ to get a product of 1?

Good Instruction is the Best Test-Prep

- Students acquire conceptual knowledge as well as skills to enable them to organize their knowledge, transfer knowledge to new situations, and acquire new knowledge.
- Students engage with challenging tasks that involve active meaning-making.
- Students know what is expected

Hiebert & Grouws, 2007

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Productive or **Unproductive** Belief?

1. **The primary purpose of assessment is accountability for students through report card marks or grades.**
2. Multiple data sources are needed to provide an accurate picture of teacher and student performance.
3. **Multiple-choice and other "objective" paper-and-pencil tests are the best ways to assess mathematical knowledge reliably and accurately.**
4. **Stopping teaching to review and take practice tests improves students' performance on high-stakes tests.**

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Essential Shifts in Assessment Practices

1. Create and use common high-quality assessments
2. Collaboratively analyze SBAC and PARCC prototype assessment tasks to understand proficiency expectations.
3. Use tasks that assess conceptual understanding and mathematical practices in addition to procedural fluency
4. Teach students to take responsibility for their learning
5. Use assessment results formatively; i.e., use errors and misconceptions as instructional opportunities
6. Provide opportunities for on-going review and practice instead of stopping instruction for "test prep."

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Thank You!

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